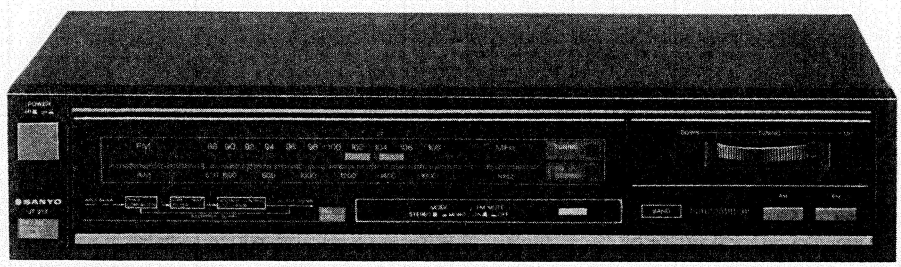
SERVICE MANUAL

STEREO TUNER

SANYO

JT 277

(EUROPE)



SPECIFICATIONS

Note:
The below mentioned specifications are mainly based on the IHF measurements standard. They can therefore not directly be compared with specifications based on the DIN standard or other standards.

FM section

Frequency range	87.5 – 108 MHz
Usable sensitivity	2.0 μV (mono)
Signal to noise ratio (1 mV ANT.)	75 dB (mono)
Harmonic distortion (1 kHz)	0.6% (mono)
Frequency response	30 Hz – 15 kHz (+1/–2 dB)
Stereo separation (1 kHz)	40 dB
Aerial input	75 ohms unbalanced

AM section

Frequency range	522 – 1602 kHz
Sensitivity	400 μV/m

General

Power requirements	DC: 12 V, 120 mA (from JA 277)
Dimensions (W x D x H)	Approx. 420 x 200 x 85 mm (16-1/2" x 7-7/8" x 3-3/8")
Weight	Approx. 2 kg (4 lbs. 7 ozs.)

Specifications subject to change without notice.

Note:
The power switch is mounted on the secondary side and does not disconnected the unit from AC-power, even when switched off.

ALEGNMENT PROCEDURES

GENERAL ADJUSTMENT CONDITION

1. DC voltage is 12V and output power 120mA.
2. Use a screw driver with plastic grip for all adjustment.
3. Signal input must be kept as low as possible to avoid overload.
4. Use an output meter of the highest possible sensivity.

FM ADJUSTMENT

● Band selector switch "FM" position.

Standard modulation frequency: 1000 Hz ± 75 kHz dev.

Step	Adjustment circuit		Input condition: Measuring instrument (Frequency)		Input condition: Condition point (Input strength)	Position of Tuning dial	Output condition: Measuring instrument	Output condition: Condition point	Adjustment point	Adjustment procedure
1	IF.	V	FM Sweep generator (10.7 MHz) ⇩ Non modulation		FM-ANT Terminal (Low level)	Lowest end Where no incoming Signal	V.T.V.M. Oscilloscope	TP-203 (H) TP-205 (E)	T201	● Match wave-form with center of ceramic filter. ● Adjust for maximum sensitivity with symmetrical curve.
		S						TP-204 (H) TP-205 (E)	T202	● Adjust for symmetrical "S" curve.
2	Voltage					Lowest end	Digital Volt meter (High impedance)	TP–101 (H) TP–102 (E)	SVR101	● Adjust so that the digital Volt Meter indication becomes 1.5 ± 0.05 V.
3	OSC.	Low	* FM Signal generator	** 87.4 MHz	External antenna [75 ohms Direct] (10 dB)	Lowest end	V.T.V.M. Oscilloscope Distortion meter	Output Plug	L106	● Adjust until the distortion factor becomes minimum with the output maximum.
		High		108.25MHz		Highest end			CT–104	
4	*** ANT.	Low	FM Signal generator	90 MHz	External antenna [75 ohms Direct] (10 dB)	90 MHz	V.T.V.M. Oscilloscipe Distortion meter	Output Plug	L102 L104 L103	● Turn in SG and unit, and adjust so that the distortion factor becames minimum at the maximum output value.
		High		106 MHz		106 MHz			CT–101 CT–103 CT–102	
5	IF Voltage		FM Signal Generator (98 MHz)		External antenna [75 ohms Direct] (10 dB) → (66 dB)	98 MHz	Oscilloscope Digital Volt meter (High impedance)	TP-201 (H) TP-202 (C) (Non Earth)	T202	● Turn in SG and unit (Tuning), and adjust so that the distortion factor becomes minimum (SG output: 10 dB). At the time, check that the output wave-form is the finest with the same amount of noise in up-and down direction. ● Turn exactly, and adjust so that the digital volt meter indication becomes 0 ± 0.05V (SG output: 66 dB).
6	VCO (19 kHz)		FM Signal generator (98 MHz) Non modulation		External antenna [75 ohms Direct] (66 dB)	98 MHz	Frequency Counter	TP–301 (H) TP–302 (E)	SVR302	● Set the MONO/ST switch to "Stereo" ● Turn SG and unit. ● Adjust for 19 kHz ± 30 Hz
7	Separation		FM Signal generator (98 MHz) + Stereo modulator		External antenna [75 ohms Direct] (66 dB)	98 MHz	V.T.V.M. Oscilloscope Distortion meter	Output Terminal	SVR301	● Set the function switch to "Stereo". ● Measure the voltage leakage for each channel separately and adjust for optimum separation and balance.
8	Muting		FM Signal generator (98 MHz)		External antenna [75 ohms Direct] (24dB) → (23dB)	98 MHz	V.T.V.M. Oscilloscope Distortion meter	Output Terminal	SVR201	● Mute SW: ON ● Set attennator of SG to 24 dB adjust the SVR201 until sound on position. ● Set attennator of SG to 23 dB and check the until sound off position.

* SG-1000 Hz ± 4 kHz dev. 60 dBμ.

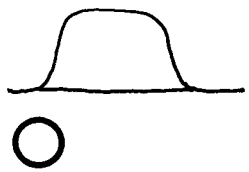
** 87.33 ~ 87.46 MHz

Notes: ● The Tuning point should be the minimum distortion point.
● Stereo modulator – Pilot signal (19 kHz): ±6.75 kHz dev. Main signal: 1 kHz ±40 kHz dev.

*** Set SG at 129.3 MHz (image of 107.9 MHz signal) and adjust its output to about 90 dB (practical sensitivity +80 dB), then tune in unit (tuning frequency: 108 MHz). After that, adjust L101, by extending or contracting it slightly, to obtain the minimum output; as a result, the image of 108 MHz signal becomes about more than 80 dB.

FM IF

Not good
The top-left corner of wave-form is declined.
(Turn T201 a little clockwise.)

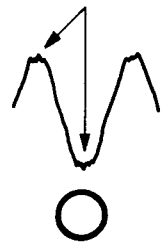


Good
The wave-form is flat or its center is slightly curved.

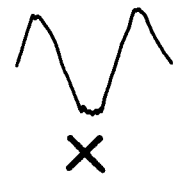
Not good
The center of wave-form is concaved or its top-left corner is tilted upward.
(Turn T201 a little counter-clockwise.)

IF Voltage

Adjust to have the same amount of noises in both directions.



Good



Not good

AM ADJUSTMENT • Band selector switch "AM" position.

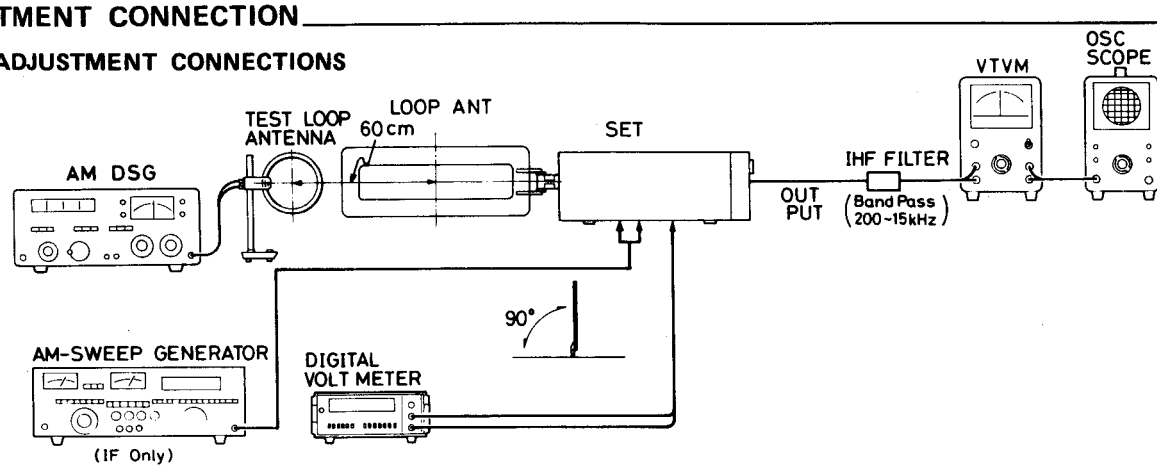
Standard modulation frequency: 1000 Hz 30% 100 dB

Step	Adjustment circuit		Input condition: Measuring instrument (Frequency)		Input condition: Condition point (Input strength)	Position of Tuning dial	Output condition: Measuring instrument	Output condition: Condition point	Adjustment point	Adjustment procedure
1	IF		AM Sweep generator (460 kHz)		IRE Loop antenna (Low level)	Lowest end Where no incoming Signal	V.T.V.M. Oscilloscope	TP–151 (H) TP–102 (E)	T151	• Match ware-form with center of ceramic filter.
2	OSC.	Low	AM Signal generator	510 kHz	IRE Loop antenna	Lowest end	V.T.V.M. Oscilloscope	Output Plug	L153	• Adjust for maximum. • Repeat adjustment.
		High		1700 kHz		Highest end			CT–153	
3	* ANT.	Low	AM Signal generator	600 kHz	IRE Loop antenna	600 kHz	V.T.V.M. Oscilloscope	Output Plug	L151	
		High		1400 kHz		1400 kHz			CT–151	

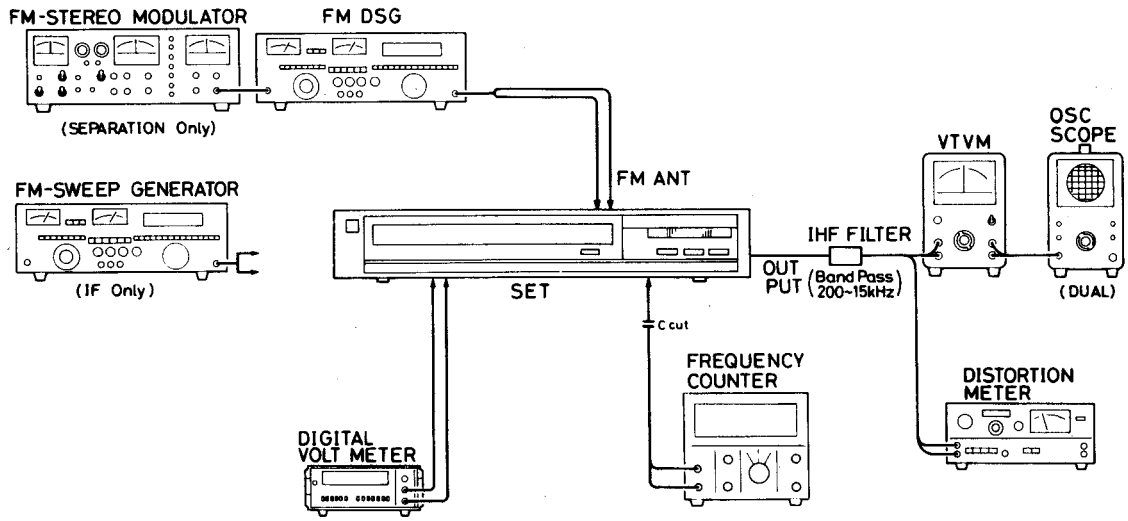
*ANT: SG Output ---- 76 dB

ADJUSTMENT CONNECTION

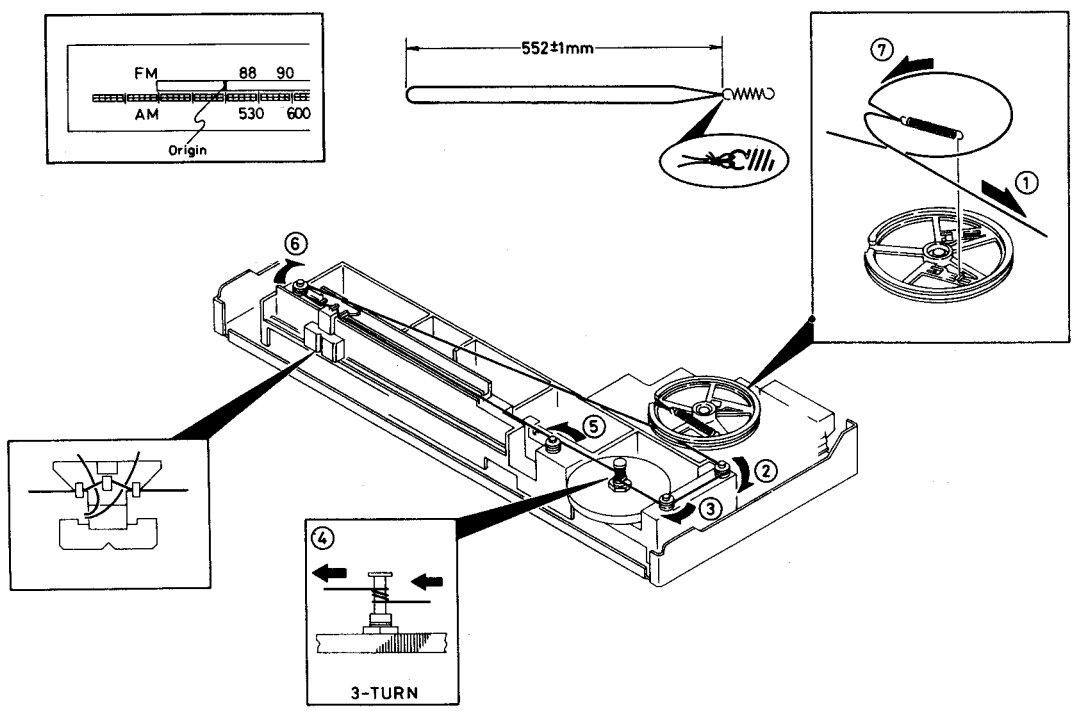
AM ADJUSTMENT CONNECTIONS



FM ADJUSTMENT CONNECTIONS

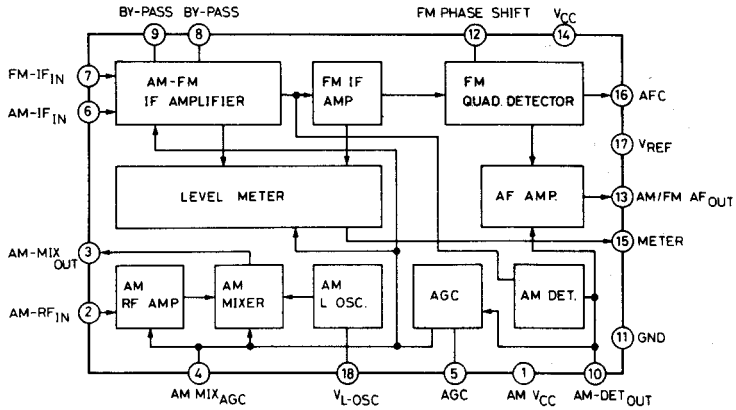


DIAL CORD STRINGING

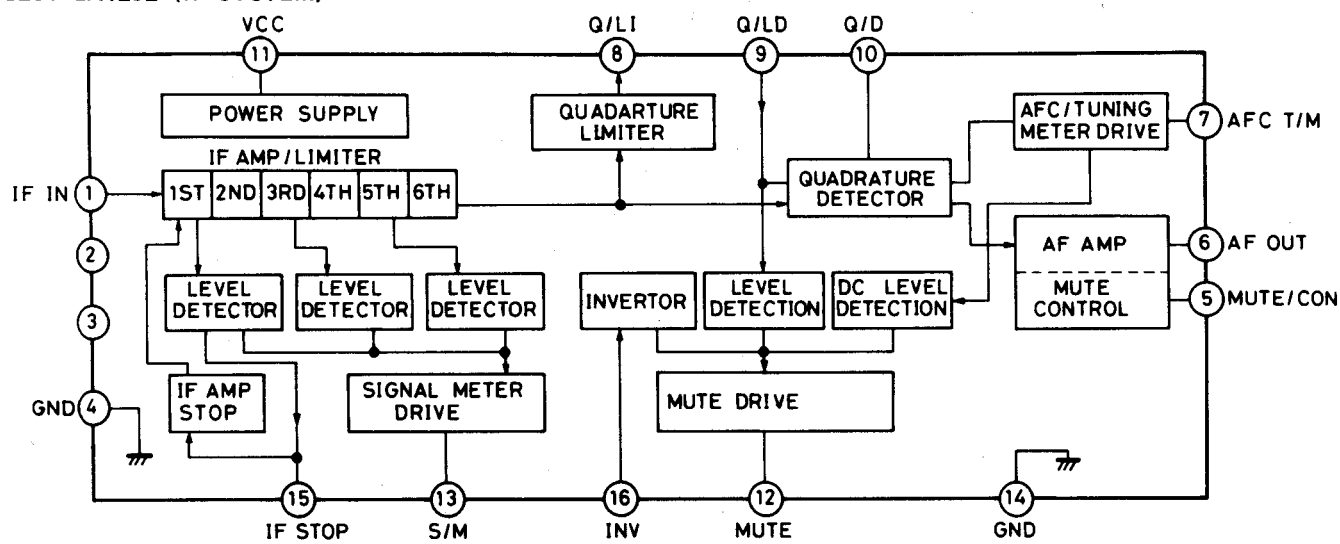


IC BLOCK DIAGRAM

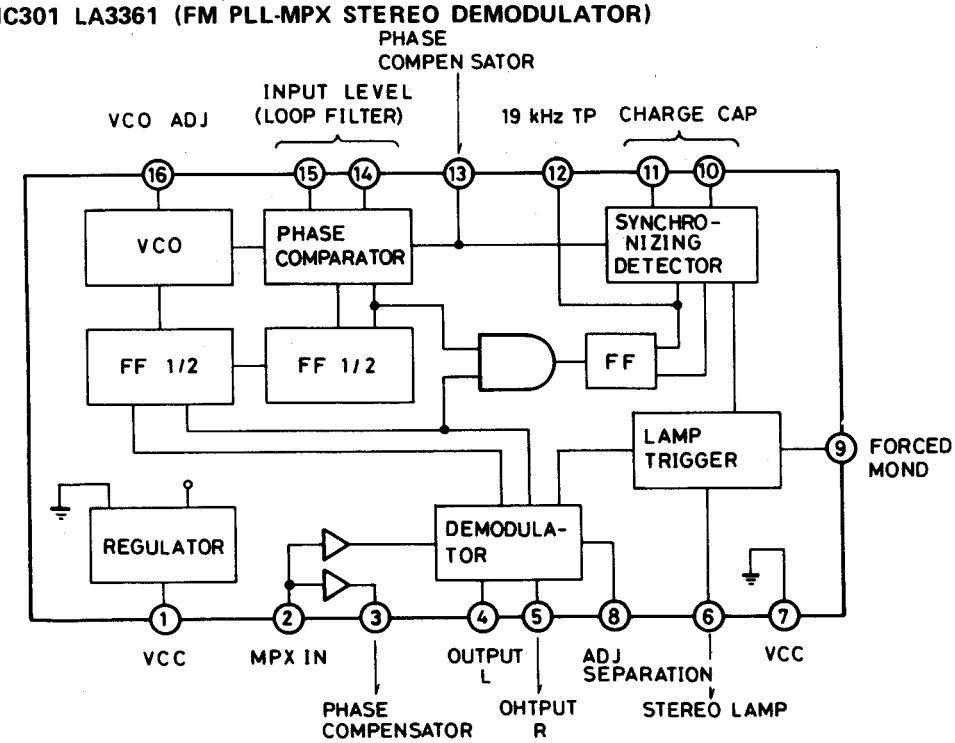
IC151 AN7224 (AM IF SYSTEM)

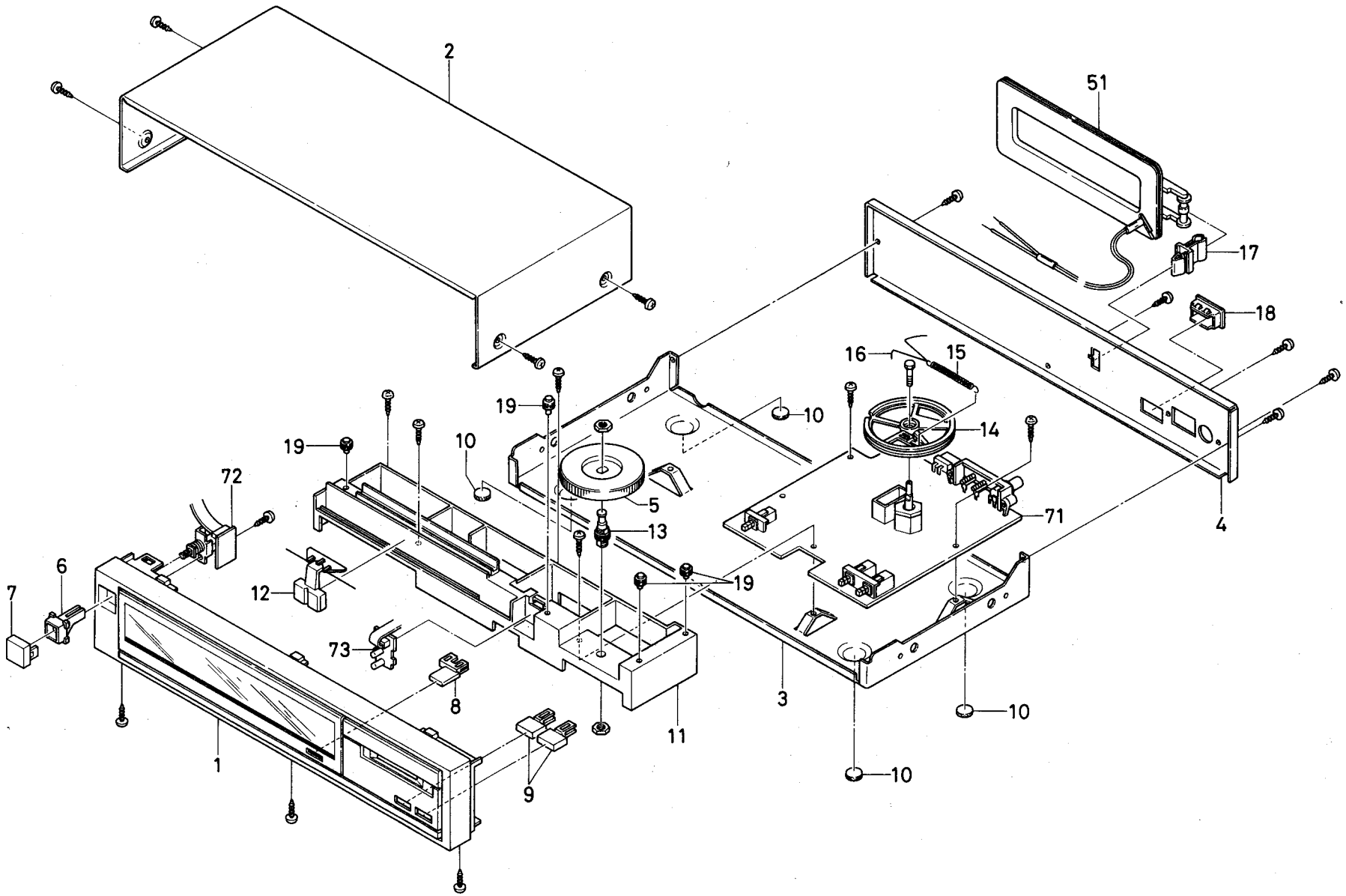


IC201 LA1232 (IF SYSTEM)



IC301 LA3361 (FM PLL-MPX STEREO DEMODULATOR)

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PARTS LIST

NOTE:

* Materials of Capacitors and Resistors are abbreviated as follows;

AL ELECT .....Aluminum Electrolytic
BC CON .....Semiconductor Ceramic
CHIP BC .....Chip Semiconductor Ceramic
CHIP TAN .....Chip Tantal
ELECT .....Electrolytic
PP CON .....Polypropylene
MT GLAZE .....Metal Glaze
FP CARBON .....Flameproof Carbon

* Tolerance of Capacitors and Resistors are noted with follow symboles;

J .....±5%
K .....±10%
M .....±20%
N .....±30%
P .....+ 100 − 0%
Q .....+ 30 − 10%
Z .....+ 80 − 20%

PACKING & ACCESSORIES

Ref. No.	Part No.	Description
	141-6-133T-73208	INNER CORR CASE
	141-6-144T-93000	FOAM PLASTIC CASE
	141-6-235T-35601	INNER POLYE LAMINA COVER, SET
or	141-6-235T-35606	INNER POLYE LAMINA COVER, SET
	141-6-231T-25350	INNER POLYE COVER, ACCESSORY
	141-6-409T-26206	INST MANUAL
	141-6-415T-23500	NOTICE, NORWAY
	141-6-415T-32301	NOTICE, NEW FTZ
	4-245T-00700	ANT, FM

CABINET & CHASSIS

Ref. No.	Part No.	Description
1	141-0-122T-60310	FRONT PANEL ASSY
	BJB2S++3+8+Z1	BIND HD 2 TAPPING SCREW 3X8
2	141-2-111T-58271	CABINET
	BJB2S++3+8+ZK	BIND HD 2 TAPPING SCREW 3X8
3	141-2-125T-39000	BOTTOM LID
4	141-2-126T-54614	BACK LID
	BJB2S++3+8+Z1	BIND HD 2 TAPPING SCREW 3X8
5	141-2-165T-05100	ROTARY KNOB, TUNING
	NJR3S++9075Z1	HEX NUT 3 9
6	141-2-160T-60500	PUSH BUTTON, POWER
7	141-2-156T-37900	CUP KNOB, POWER
8	141-2-160T-60400	PUSH BUTTON, MONO/STEREO
9	141-2-160T-60300	PUSH BUTTON, BAND
10	141-2-174T-13100	STAND
11	141-2-221T-11300	BRACKET PANEL
	BJB2S++3+8+Z1	BIND HD 2 TAPPING SCREW 3X8
12	141-2-511T-30400	POINTER
13	141-2-566T-16500	TUNING SHAFT
	NJR3S++9075Z1	HEX NUT 3 9
14	141-2-538T-13300	DRUM
	BJRBS2R6+6+Z1	HEX HD BOLT 2.6X6
15	141-2-856T-07601	SPRING COIL, ROPE
16	141-2-340T-05003	ROPE, 0.5 X 1250 MM
17	141-2-210T-70800	BRACKET, LOOP ANT
18	141-2-210T-70900	BRACKET, OUTPUT & POWER SOURCE
19	141-0-661T-36301	PULLEY ASSY
20	141-2-464T-43100	FIXER, LEAD RETAINER

ELECTRICAL PARTS

Ref. No.	Part No.	Description
51	4-269T-00101	LOOP ANT ASSY

TUNER MAIN PCB ASSY

Ref. No.	Part No.	Description
71	141-4-285T-36873	P.C.BOARD ASSY, TUNER MAIN
	BJB2S++3+8+Z1	BIND HD 2 TAPPING SCREW 3X8
	141-2-322T-18900	SHIELD PLATE, PARTS SIDE
	141-2-322T-72100	SHIELD PLATE, SOLDER SIDE
	141-2-322T-72101	SHIELD PLATE, LID
	4-224T-28800	VC, WITH VR, CV151·CV152·VR101
	141-2-382T-22700	TERMINAL, EXT-ANT (JK1)
CT101	4-224R-11600	TRIMMER
CT102	4-224R-11600	TRIMMER
CT103	4-224R-11600	TRIMMER
CT104	4-224R-11600	TRIMMER
CT151	4-224R-11600	TRIMMER
CT153	4-224T-15500	TRIMMER
or	4-224T-15571	TRIMMER
T151	4-256T-26440	IFT
T201	4-256T-35040	IFT
T202	4-256T-33640	IFT
T203	4-255T-06140	MX COIL
L101	4-265T-07500	VHF COIL
L102	4-265T-56240	VHF COIL
L103	4-265T-59742	VHF COIL
L104	4-265T-56340	VHF COIL
L105	4-253T-15012	FILTER
L106	4-265T-57244	VHF COIL
L151	4-257T-71340	ANT COIL
L153	4-258T-28641	OSC COIL
L155	4-253T-15044	FILTER
X151	4-256T-80971	IFT
X201	4-256T-81074	IF FILTER
X202	4-256T-81074	IF FILTER
X203	4-256T-81074	IF FILTER
S101	4-248T-03600	SWITCH
S201	4-238T-39400	SWITCH
SVR101	4-220T-19475	SEMI-FIXED VR, 10K OHM (B)
or	4-222T-97575	SEMI-FIXED VR, 10K OHM (B)
SVR201	4-220T-19475	SEMI-FIXED VR, 10K OHM (B)
or	4-222T-97575	SEMI-FIXED VR, 10K OHM (B)
SVR301	4-220T-19472	SEMI-FIXED VR, 1K OHM (B)
or	4-222T-97572	SEMI-FIXED VR, 1K OHM (B)
SVR302	4-220T-19475	SEMI-FIXED VR, 10K OHM (B)
or	4-222T-97575	SEMI-FIXED VR, 10K OHM (B)
CN1	4-240T-83574	SOCKET 4P
CN3	4-240T-83574	SOCKET 4P
P901	4-236T-21073	PLUG 5P, OUTPUT & POWER SOURCE
TP101	4-237T-00100	TERMINAL BOARD
TP201	4-237T-00100	TERMINAL BOARD
TP202	4-237T-00100	TERMINAL BOARD
TP301	4-237T-00100	TERMINAL BOARD
IC101	SIAN78L09++++	IC AN78L09 TO-92
IC151	SIAN7224+++++	IC AN7224 DIP18
IC201	SILA1232+++++	IC LA1232 DIP16
IC301	SILA3361+++++	IC LA3361 DIP16
Q101	SF2K212+++F++	FET 2SK212 F
Q102	STC2999E++++T	TR 2SC2999 E T
Q103	SF2K212+++F++	FET 2SK212 F
Q104	STC930+E+++C1	TR 2SC930 E CONV SP

PARTS LIST

Ref. No.	Part No.	Description
Q151	SF2K222+++D++	FET 2SK222 D
Q201	STC930+E+++F1	TR 2SC930 E IF SP
Q301	STC536+G+++UB	TR 2SC536 G AUD B SP
Q302	STC536+G+++UB	TR 2SC536 G AUD B SP
Q303	STC3330U++++T	TR 2SC3330 U T
Q304	STC3330U++++T	TR 2SC3330 U T
Q351	STA608+F++++B	TR 2SA608 F B SP
Q352	STA608+F++++B	TR 2SA608 F B SP
Q353	STC536+G+++UB	TR 2SC536 G AUD B SP
Q354	STC536+G+++UB	TR 2SC536 G AUD B SP
Q355	STC536+G+++UB	TR 2SC536 G AUD B SP
Q356	STC536+G+++UB	TR 2SC536 G AUD B SP
Q357	STC536+G+++UB	TR 2SC536 G AUD B SP
D101	SCSVC211B+++1	VARACTOR DIODE SVC211B SP
D102	SCSVC211B+++1	VARACTOR DIODE SVC211B SP
D103	SCSVC211B+++1	VARACTOR DIODE SVC211B SP
D104	SCSVC211B+++1	VARACTOR DIODE SVC211B SP
D105	SD1S2473++++T	DIODE 1S2473T-77
D106	SD1S2473++++T	DIODE 1S2473T-77
D107	SD1S2473++++T	DIODE 1S2473T-77
D110	SD1S2473++++T	DIODE 1S2473T-77
D201	SD1S2473++++T	DIODE 1S2473T-77
D351	SD1S2473++++T	DIODE 1S2473T-77
D352	SD1S2473++++T	DIODE 1S2473T-77
D353	SD1S2473++++T	DIODE 1S2473T-77
C101	CC+50101KLYBG	CERAMIC 100PF 50V K L YB
C102	CC+50390JLSLG	CERAMIC 39PF 50V J L SL
C103	CC+50030DRSLF	CERAMIC 3PF 50V D R SL
C104	CC+50101JRSLF	CERAMIC 100PF 50V J R SL
C105	CC+50102KRYBF	CERAMIC 0.001MF 50V K R YB
C106	CC+50050DRSLF	CERAMIC 5PF 50V D R SL
C107	CC+50050DRSLF	CERAMIC 5PF 50V D R SL
C108	CC+50101JRSLF	CERAMIC 100PF 50V J R SL
C109	CC+50103ZRYFF	CERAMIC 0.01MF 50V Z R YF
C110	CC+50050DRSLF	CERAMIC 5PF 50V D R SL
C111	CC+50103ZRYFF	CERAMIC 0.01MF 50V Z R YF
C112	CC+50100DRCHF	CERAMIC 10PF 50V D R CH
C113	CC+50220JRCHF	CERAMIC 22PF 50V J R CH
C114	CC+50080DRCHF	CERAMIC 8PF 50V D R CH
C115	CC+50020CRCKF	CERAMIC 2PF 50V C R CK
C116	CC+50030CDWKS	CERAMIC 3PF 50V C D WK
C118	CC+50102KRYBF	CERAMIC 0.001MF 50V K R YB
C119	CE+50105MRHAF	ELECT 1MF 50V M R HA F
C121	CE+50105MRHAF	ELECT 1MF 50V M R HA F
C122	CC+50102KRYBF	CERAMIC 0.001MF 50V K R YB
C124	CC+50103ZRYFF	CERAMIC 0.01MF 50V Z R YF
C152	CC+50330JASL+	CERAMIC 33PF 50V J A SL
C153	CB+25103MAXR+	BC CON 0.01MF 25V M A XR
C154	CB+25563MR++F	BC CON 0.056MF 25V M R
C155	CC+50560JRSLF	CERAMIC 56PF 50V J R SL
C156	CE+10107MRHAF	ELECT 100MF 10V M R HA F
C157	CE+25475MRHAF	ELECT 4.7MF 25V M R HA F
C158	CB+25223MR++F	BC CON 0.022MF 25V M R
C159	CB+25223MR++F	BC CON 0.022MF 25V M R
C160	CB+25473MR++F	BC CON 0.047MF 25V M R
C161	CB+25103MR++F	BC CON 0.01MF 25V M R
C162	CB+25103MAXR+	BC CON 0.01MF 25V M A XR
C163	CE+10107MRHAF	ELECT 100MF 10V M R HA F
C164	CB+25223MR++F	BC CON 0.022MF 25V M R
C166	CE+50105MRHAF	ELECT 1MF 50V M R HA F
C167	CN100341JR++F	P P CON 340PF 100V J R
C168	CC+50180JDUJS	CERAMIC 18PF 50V J D UJ
C171	CB+25223MR++F	BC CON 0.022MF 25V M R
C172	CC+50471KAYB+	CERAMIC 470PF 50V K A YB
C201	CC+50103ZRYFF	CERAMIC 0.01MF 50V Z R YF
C202	CC+50103ZRYFF	CERAMIC 0.01MF 50V Z R YF
C203	CC+50103ZRYFF	CERAMIC 0.01MF 50V Z R YF
C204	CC+50223ZRYFF	CERAMIC 0.022MF 50V Z R YF
C205	CC+50223ZRYFF	CERAMIC 0.022MF 50V Z R YF
C206	CC+50223ZRYFF	CERAMIC 0.022MF 50V Z R YF
C207	CE+50105MRHAF	ELECT 1MF 50V M R HA F
C208	CC+50101JRSLF	CERAMIC 100PF 50V J R SL
C209	CE+25475MRHAF	ELECT 4.7MF 25V M R HA F

Ref. No.	Part No.	Description
C210	CE+16106MRHAF	ELECT 10MF 16V M R HA F
C211	CC+50431JRSLF	CERAMIC 430PF 50V J R SL S
C212	CC+50223ZRYFF	CERAMIC 0.022MF 50V Z R YF
C213	CC+50223ZRYFF	CERAMIC 0.022MF 50V Z R YF
C214	CC+50223ZRYFF	CERAMIC 0.022MF 50V Z R YF
C215	CC+50102KRYBF	CERAMIC 0.001MF 50V K R YB
C216	CE+50105MRHAF	ELECT 1MF 50V M R HA F
C217	CE+16107MRHAF	ELECT 100MF 16V M R HA F
C218	CE+50105MRHAF	ELECT 1MF 50V M R HA F
C301	CE+16106MRHAF	ELECT 10MF 16V M R HA F
C302	CB+25223MR++F	BC CON 0.022MF 25V M R
C304	CB+25123MR++F	BC CON 0.012MF 25V M R
C305	CB+25123MR++F	BC CON 0.012MF 25V M R
C306	CE+50105MRHAF	ELECT 1MF 50V M R HA F
C307	CE+50105MRHAF	ELECT 1MF 50V M R HA F
C308	CB+25222MR++F	BC CON 0.0022MF 25V M R
C309	CB+25222MR++F	BC CON 0.0022MF 25V M R
C310	CC+50561KRYBF	CERAMIC 560PF 50V K R YB
C311	CC+50561KRYBF	CERAMIC 560PF 50V K R YB
C312	CE+50474MRHAF	ELECT 0.47MF 50V M R HA F
C313	CE+50474MRHAF	ELECT 0.47MF 50V M R HA F
C314	CB+25222MR++F	BC CON 0.0022MF 25V M R
C315	CB+25222MR++F	BC CON 0.0022MF 25V M R
C316	CE+50225MRHAF	ELECT 2.2MF 50V M R HA F
C317	CE+50105MRHAF	ELECT 1MF 50V M R HA F
C318	CE+50474MRHAF	ELECT 0.47MF 50V M R HA F
C319	CE+50105MRHAF	ELECT 1MF 50V M R HA F
C320	CN100102JR++F	P P CON 1000PF 100V J R
C323	CE+10107MRHAF	ELECT 100MF 10V M R HA F
C351	CE+25475MRHAF	ELECT 4.7MF 25V M R HA F
C352	CE+50474MRHAF	ELECT 0.47MF 50V M R HA F
C901	CE+16227MVHAS	ELECT 220MF 16V M V HA S
R101	RC/+4332JT++R	CARBON T 3.3K OHM J 1/4W R25
R102	RC/+4104JT++R	CARBON T 100K OHM J 1/4W R25
R103	RC/+4100JT++R	CARBON T 10 OHM J 1/4W R25
R104	RC/+4331JT++R	CARBON T 330 OHM J 1/4W R25
R105	RC/+4564JT++R	CARBON T 560K OHM J 1/4W R25
R106	RC/+4331JT++R	CARBON T 330 OHM J 1/4W R25
R107	RC/+4331JT++R	CARBON T 330 OHM J 1/4W R25
R108	RC/+4104JT++R	CARBON T 100K OHM J 1/4W R25
R109	RC/+4100JT++R	CARBON T 10 OHM J 1/4W R25
R110	RC/+4272JT++R	CARBON T 2.7K OHM J 1/4W R25
R111	RC/+4474JT++R	CARBON T 470K OHM J 1/4W R25
R112	RC/+4103JT++R	CARBON T 10K OHM J 1/4W R25
R113	RC/+4273JT++R	CARBON T 27K OHM J 1/4W R25
R115	RC/+4105JT++R	CARBON T 1M OHM J 1/4W R25
R116	RC/+4103JT++R	CARBON T 10K OHM J 1/4W R25
R117	RC/+4103JT++R	CARBON T 10K OHM J 1/4W R25
R118	RC/+4103JT++R	CARBON T 10K OHM J 1/4W R25
R120	RC/+4123JT++R	CARBON T 12K OHM J 1/4W R25
R121	RC/+4331JT++R	CARBON T 330 OHM J 1/4W R25
R151	RC/+4105JT++R	CARBON T 1M OHM J 1/4W R25
R152	RC/+4101JT++R	CARBON T 100 OHM J 1/4W R25
R153	RC/+4101JT++R	CARBON T 100 OHM J 1/4W R25
R154	RC/+4103JT++R	CARBON T 10K OHM J 1/4W R25
R155	RC/+4102JT++R	CARBON T 1K OHM J 1/4W R25
R156	RC/+4102JT++R	CARBON T 1K OHM J 1/4W R25
R157	RC/+4561JT++R	CARBON T 560 OHM J 1/4W R25
R158	RC/+4471JT++R	CARBON T 470 OHM J 1/4W R25
R159	RC/+4471JT++R	CARBON T 470 OHM J 1/4W R25
R160	RC/+4152JT++R	CARBON T 1.5K OHM J 1/4W R25
R161	RC/+4560JT++R	CARBON T 56 OHM J 1/4W R25
R162	RC/+4103JT++R	CARBON T 10K OHM J 1/4W R25
R163	RC/+4224JT++R	CARBON T 220K OHM J 1/4W R25
R164	RC/+4101JT++R	CARBON T 100 OHM J 1/4W R25
R165	RC/+4102JT++R	CARBON T 1K OHM J 1/4W R25
R201	RC/+4331JT++R	CARBON T 330 OHM J 1/4W R25
R202	RC/+4474JT++R	CARBON T 470K OHM J 1/4W R25
R203	RC/+4102JT++R	CARBON T 1K OHM J 1/4W R25
R204	RC/+4331JT++R	CARBON T 330 OHM J 1/4W R25
R205	RC/+4331JT++R	CARBON T 330 OHM J 1/4W R25
R206	RC/+4331JT++R	CARBON T 330 OHM J 1/4W R25
R207	RC/+4563JT++R	CARBON T 56K OHM J 1/4W R25
R208	RC/+4563JT++R	CARBON T 56K OHM J 1/4W R25

PARTS LIST

Ref. No.	Part No.	Description
R209	RC/+4124JT++R	CARBON T 120K OHM J 1/4W R25
R210	RC/+4103JT++R	CARBON T 10K OHM J 1/4W R25
R211	RC/+4103JT++R	CARBON T 10K OHM J 1/4W R25
R212	RC/+4103JT++R	CARBON T 10K OHM J 1/4W R25
R213	RC/+4102JT++R	CARBON T 1K OHM J 1/4W R25
R214	RC/+2820JP+++	CARBON P 82 OHM J 1/2W
R215	RC/+4103JT++R	CARBON T 10K OHM J 1/4W R25
R216	RC/+4103JT++R	CARBON T 10K OHM J 1/4W R25
R217	RC/+4103JT++R	CARBON T 10K OHM J 1/4W R25
R218	RC/+4563JT++R	CARBON T 56K OHM J 1/4W R25
R219	RC/+4273JT++R	CARBON T 27K OHM J 1/4W R25
R301	RC/+4331JT++R	CARBON T 330 OHM J 1/4W R25
R302	RC/+4472JT++R	CARBON T 4.7K OHM J 1/4W R25
R303	RC/+4472JT++R	CARBON T 4.7K OHM J 1/4W R25
R304	RC/+4822JT++R	CARBON T 8.2K OHM J 1/4W R25
R305	RC/+4822JT++R	CARBON T 8.2K OHM J 1/4W R25
R306	RC/+4822JT++R	CARBON T 8.2K OHM J 1/4W R25
R307	RC/+4822JT++R	CARBON T 8.2K OHM J 1/4W R25
R308	RC/+4564JT++R	CARBON T 560K OHM J 1/4W R25
R309	RC/+4564JT++R	CARBON T 560K OHM J 1/4W R25
R310	RC/+4331JT++R	CARBON T 330 OHM J 1/4W R25
R311	RC/+4331JT++R	CARBON T 330 OHM J 1/4W R25
R312	RC/+4222JT++R	CARBON T 2.2K OHM J 1/4W R25
R313	RC/+4222JT++R	CARBON T 2.2K OHM J 1/4W R25
R314	RC/+4104JT++R	CARBON T 100K OHM J 1/4W R25
R315	RC/+4104JT++R	CARBON T 100K OHM J 1/4W R25
R316	RC/+4332JT++R	CARBON T 3.3K OHM J 1/4W R25
R317	RC/+4332JT++R	CARBON T 3.3K OHM J 1/4W R25
R318	RC/+4103JT++R	CARBON T 10K OHM J 1/4W R25
R319	RC/+4103JT++R	CARBON T 10K OHM J 1/4W R25
R320	RC/+4102JT++R	CARBON T 1K OHM J 1/4W R25
R321	RC/+4682JT++R	CARBON T 6.8K OHM J 1/4W R25
R351	RC/+4104JT++R	CARBON T 100K OHM J 1/4W R25
R352	RC/+4104JT++R	CARBON T 100K OHM J 1/4W R25
R353	RC/+4103JT++R	CARBON T 10K OHM J 1/4W R25
R354	RC/+4104JT++R	CARBON T 100K OHM J 1/4W R25
R355	RC/+4331JT++R	CARBON T 330 OHM J 1/4W R25
R356	RC/+4334JT++R	CARBON T 330K OHM J 1/4W R25
R357	RC/+4104JT++R	CARBON T 100K OHM J 1/4W R25
R358	RC/+4101JT++R	CARBON T 100 OHM J 1/4W R25
R359	RC/+4104JT++R	CARBON T 100K OHM J 1/4W R25
R360	RC/+4563JT++R	CARBON T 56K OHM J 1/4W R25
R361	RC/+4104JT++R	CARBON T 100K OHM J 1/4W R25
R362	RC/+4333JT++R	CARBON T 33K OHM J 1/4W R25
R363	RC/+4104JT++R	CARBON T 100K OHM J 1/4W R25
R364	RC/+4104JT++R	CARBON T 100K OHM J 1/4W R25
R365	RC/+4332JT++R	CARBON T 3.3K OHM J 1/4W R25
R366	RC/+4561JT++R	CARBON T 560 OHM J 1/4W R25
R367	RC/+4152JT++R	CARBON T 1.5K OHM J 1/4W R25
R370	RC/+4104JT++R	CARBON T 100K OHM J 1/4W R25
R371	RC/+4334JT++R	CARBON T 330K OHM J 1/4W R25

INDICATOR PCB ASSY

Ref. No.	Part No.	Description
72	141-4-285T-36900	P.C.BOARD ASSY, INDICATOR
CN2	4-240T-83574	SOCKET 4P
D355	SLSLP238FB5PG	LED SLP238F-51P B GR
D356	SLSLP138CB5RE	LED SLP138C-51 B RE

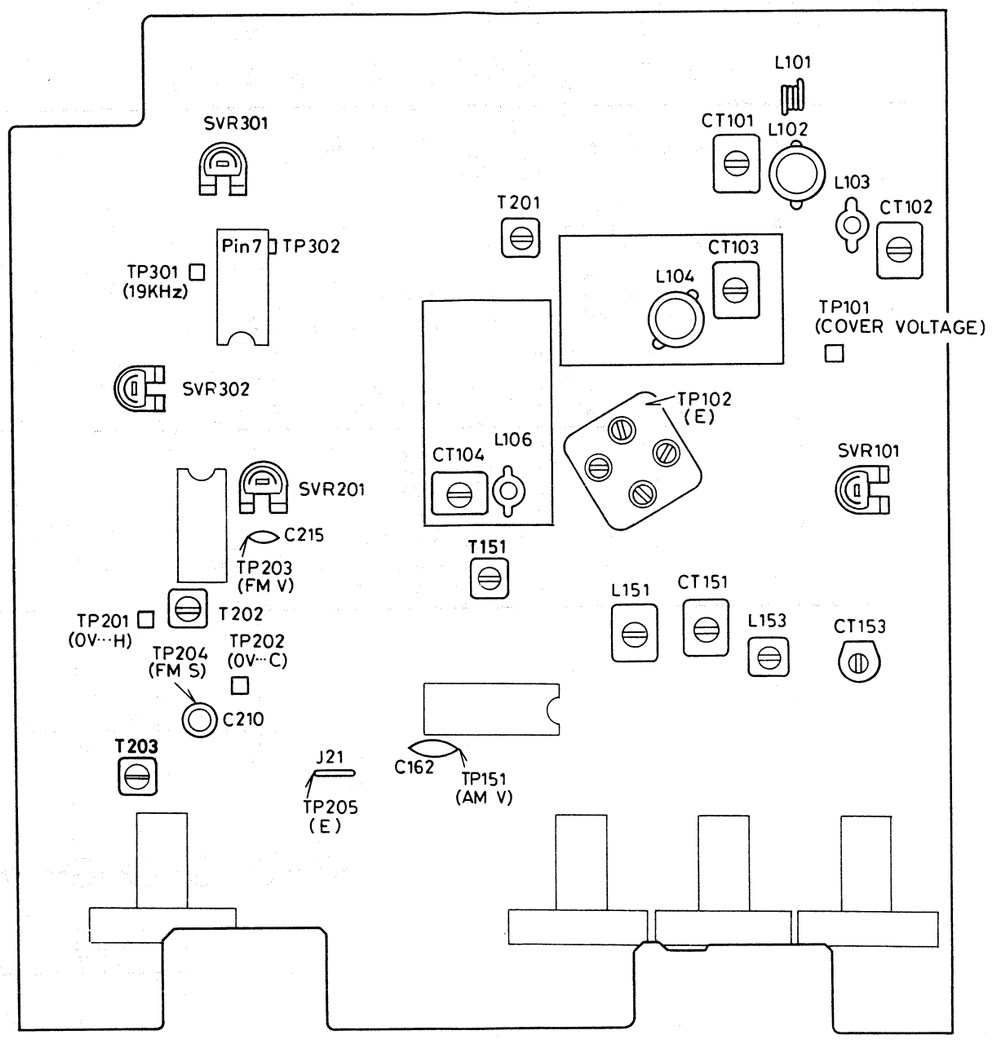
POWER SWITCH PCB ASSY

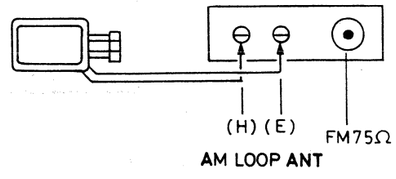
Ref. No.	Part No.	Description
73	141-4-285T-37000	P.C.BOARD ASSY, POWER SWITCH
	BJB2S++3+8+Z1	BIND HD 2 TAPPING SCREW 3X8
S901	4-238T-83100	PUSH SWITCH
CN4	4-240T-83574	SOCKET

POINTER PCB ASSY

Ref. No.	Part No.	Description
74	141-4-285T-37100	P.C.BOARD ASSY, POINTER
D354	SLSLP178BB+RE	LED SLP178B B RE

PARTS LOCATION





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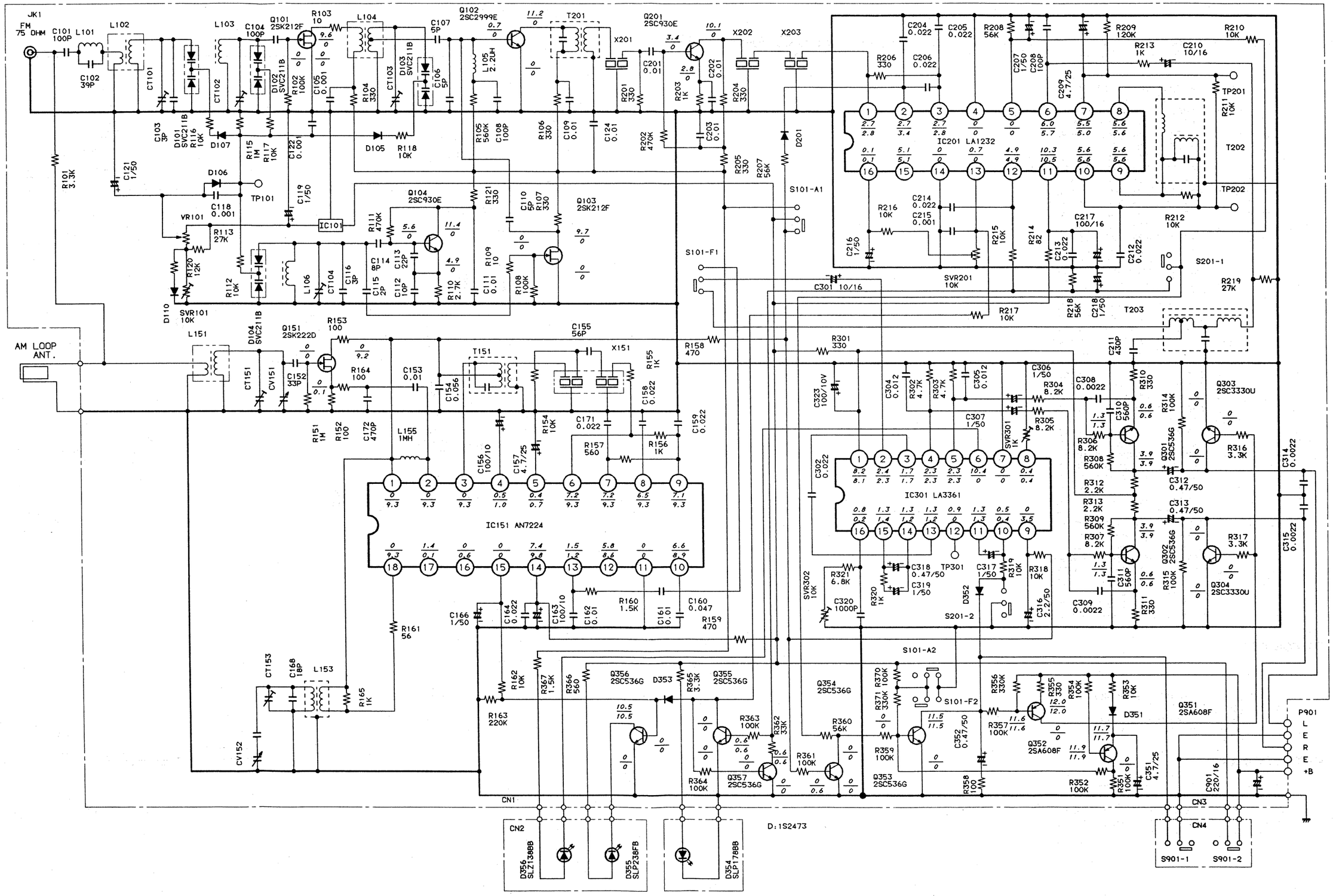
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IC201 LA1232
IC301 LA3361
CN1
CN2
CN3
CN4
D:1S2473
D356 SLZ138BB
D355 SLP238FB
D354 SLP178BB
S101-A1
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S901-1
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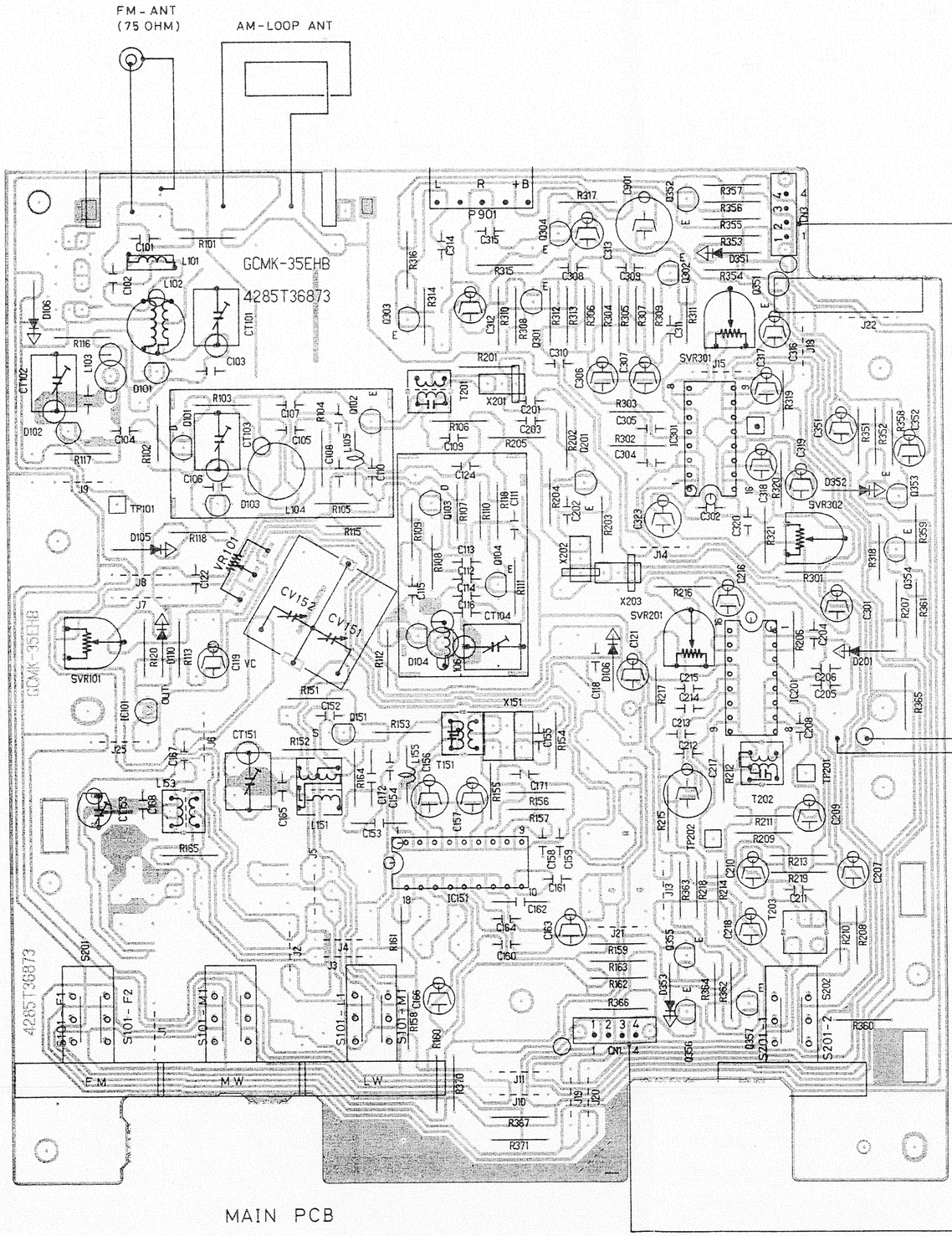
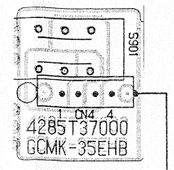
P901
L
R
E
+B

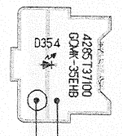


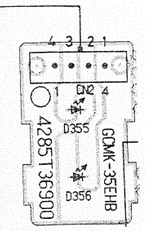
MAIN PCB

POWER SW. PCB



POINTER PCB





INDICATOR PCB